Upgrading Nanometrics Instrument Software

1 Overview

This document provides instructions for upgrading software for the Nanometrics instruments listed in section 1.1, and for recovering a misconfigured instrument.

These instructions must be followed carefully to ensure a successful upgrade, particularly if you are upgrading the instrument software to a version that is much newer than the version being replaced. Older firmware may not be able to read the configuration saved (committed) by a newer version of the firmware. Therefore, carefully observe these two rules when upgrading:

- Do not commit the configuration with the new firmware until you are certain that the new firmware is operating correctly. Once you have committed the configuration, you may not be able to revert to an earlier version of firmware.
- Always set the new firmware as default BEFORE committing the configuration with that version. That way, if the instrument is rebooted, it will come up running the new firmware, which can read both the new and the old configuration.

See section 2 for the upgrade procedure. For information on recovering a misconfigured instrument, see section 3. See the separate Nanometrics UI User Guide for additional information on the user interface; in particular, the Maintenance chapter for information on instrument files.

1.1 Applicable Nanometrics instruments

This document applies to all instruments that use a Comms Controller:

- Carina
- Cygnus
- Lynx
- Europa/Europa T
- Janus

The basic procedure should also be followed with Trident and TimeServer; however, the configuration on those instruments is forward- and backward-compatible, so you can normally revert to an earlier firmware version without problems.

2 Upgrading instrument software



Caution To ensure a successful upgrade, follow the upgrade procedure carefully, and observe these two rules:

- Do not commit the configuration with the new firmware until you are certain that the new firmware is operating correctly. Once you have committed the configuration, you may not be able to revert to an earlier version of firmware.
- Always set the new firmware as default BEFORE committing the configuration with that version. That way, if the instrument is rebooted, it will come up running the new firmware, which can read both the new and the old configuration.

Recommendations:

- Test the upgrade on one unit and allow it to run for 24 hours before upgrading other units. This will provide time to ensure that all aspects of the system, from the remote site to the NAQS server, are configured correctly. If upgrades are to be performed in the field, the operator should practice upgrading units at the central site first.
- After running the unit, review the system log files to identify any areas that may be misconfigured. In most cases there will be configuration changes to make after running the firmware.
- Run the new code for as long as possible—preferably several hours or days—before committing the new configuration. This is particularly important when upgrading the first unit.

To upgrade instrument software (assume you are running old firmware in partition A for the purpose of this procedure):

- 1. Upload the new firmware to partition B.
- 2. After the code has uploaded successfully, select "Test Code" to run the new firmware.
- 3. Allow the firmware to run for a few minutes to ensure that it is running stably.
- 4. Set the new code as default so that it will be run whenever the instrument is rebooted.
- 5. Change configuration parameters as required by the new firmware. Submit but do NOT commit the changes.
- 6. Allow the firmware to run with the new configuration until you are satisfied that it is running correctly.



Caution After committing the configuration, you will be unable to revert to the earlier firmware. Do not commit the changes until you are satisfied the firmware is running correctly.

7. Commit the changes.

3 Recovering a misconfigured instrument

Reverting to the old firmware after a new configuration has been committed can result in a misconfigured instrument. If the instrument cannot read the configuration from flash, it will boot up running a default configuration, with:

```
Serial Number = 0
```

LAN IP address = 199.71.138.59

The instrument may appear dead, since it is no longer communicating on the correct IP address.

To recover the instrument, use the procedures described below. Always try the procedure described in section 3.1 first.

3.1 Case 1: New firmware is default

If the new firmware is set as default, then power-cycling the instrument will cause it to run the new firmware on restart. The new firmware will be able to read the configuration correctly.

- 1. Power cycle the instrument.
- 2. Log on to the instrument and verify that it is running properly.

3.2 Case 2: Old firmware is default

If the old firmware is set as default, power-cycling will not help, since the instrument will always boot up running the old firmware.

In this case, it is necessary to connect to the instrument on the default IP address, then boot up the new firmware:

- 1. Connect a laptop to the LAN port of the instrument.
- 2. Configure the IP address of the laptop to be on the same subnet as the instrument (i.e. 199.71.138.x).
- 3. Log on to the instrument at 199.71.138.59, as tech, using password nmx. DO NOT CHANGE THE CONFIGURATION.
- 4. From the Maintenance page, select "Test Code" to run the new firmware. It will boot up and read its correct configuration.
- 5. Change the laptop IP address back to the original address.
- 6. Log on to the instrument and verify that it is running OK.
- 7. Set the active partition to be the default partition.

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